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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,366	03/15/2004	Edward F. Leonard	19240.145-US2	3154
56949	7590	12/02/2005	EXAMINER	
WILMER CUTLER PICKERING HALE AND DORR LLP COLUMBIA UNIVERSITY 399 PARK AVENUE NEW YORK, NY 10020			KIM, SUN U	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/801,366

Applicant(s)

LEONARD ET AL.

Examiner

John Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-43 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-20 and 38-40, drawn to a membrane exchange device for extracting components from a sample fluid comprising first, second and third inlet channels, first, second and third exit channels and a microfluidic extraction channel connected to the first, second and third inlet channels and the first, second and third exit channels.

Group II, claims 21-37, drawn to a system for performing hemodialysis comprising a membraneless exchange device comprising of first, second dialysate inlet channels, blood inlet and exit channels, first and second dialysate exit channels and a microfluidic dialysis channel connected to the first and second dialysate inlet and outlet channels and the blood inlet and exit channels and a secondary processor that receives the dialysate fluid and the at least some of the components of the blood fluid exiting the device through the first and second dialysate exit channels.

Group III, claims 41-43, drawn to a method for performing hemodialysis comprising the step of establishing laminar flows of a first dialysate fluid, blood fluid and a second dialysate fluid inside a microfluidic extraction channel and withdrawing the first dialysate fluid, the blood fluid and the second dialysate fluid from the extraction channel.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special

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technical features for the following reasons: All of the groupings are directed to a method or apparatus for using membraneless exchange device, but each group has a different special technical feature not shared by the remaining groups. Group I is directed to an apparatus which has the special technical feature of first, second and third inlet channels, first, second and third exit channels and a microfluidic extraction channel connected to the first, second and third inlet channels and the first, second and third exit channels not shared by any of the remaining groups. Group II is directed to an apparatus which has the special technical feature of first, second dialysate inlet channels, blood inlet and exit channels, first and second dialysate exit channels and a microfluidic dialysis channel connected to the first and second dialysate inlet and outlet channels and the blood inlet and exit channels and a secondary processor that receives the dialysate fluid and the at least some of the components of the blood fluid exiting the device through the first and second dialysate exit channels not shared by any of the remaining groups. Group III is directed to a method which has the special technical feature of the step of establishing laminar flows of a first dialysate fluid, blood fluid and a second dialysate fluid inside a microfluidic extraction channel and withdrawing the first dialysate fluid, the blood fluid and the second dialysate fluid from the extraction channel without separate inlet channels or exit channels not shared by any of the remaining groups.

A telephone call was made to Dr. Jane Love on 11/28/05 to request an oral election to the above restriction requirement, but did not result in an election being made. Dr. Love requested a written restriction.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is (571) 272-1142. The examiner can normally be reached on weekdays from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**John Kim**  
**Primary Examiner**  
**Art Unit 1723**

J. Kim  
November 28, 2005